AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

    receiving by the arbiter an indication from a first user as to whether the first user wishes to be speculatively allocated a first resource,

    allocating the first resource speculatively to the first user for use during an access interval, absent a request for the first resource from the first user, when the first user wishes to be speculatively allocated the first resource according to the indication,

    wherein speculatively allocating the first resource comprises allocating the first resource according to one of a fixed priority scheme and a scheme allocating the resource to a user with the fewest request.

2. (Currently Amended) The method as recited in claim 1 further comprising allocating at least a second of the resource[[s]] for use during the access interval according to a request received by the arbiter for the second resource.

3. (Previously Presented) The method as recited in claim 1 wherein the arbiter receives an indication from at least one resource as to whether the at least one resource wishes to be speculatively allocated to a user.

4. (Original) The method as recited in claim 1 wherein real-time requests are speculatively allocated by the arbiter.

5. (Previously Presented) The method as recited in claim 1 further comprising speculatively allocating more than one resource, including the first resource, to the first user for use during the access interval.

6. (Original) The method as recited in claim 1 wherein the resources are storage locations and the users are processors.

7. (Original) The method as recited in claim 1 wherein the resources are communication links and the users are communicatively coupled to the communication links.

8. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

      allocating a first of the resources speculatively to a first of the users for use during an access interval, absent a request for the first resource from the first user,

      wherein the arbiter speculatively allocates the first resource to the first user according to the first user having requested the first resource during a previous arbitration cycle.

9. (Previously Presented) The method as recited in claim 8 wherein the arbiter speculatively allocates the first resource to the first user according to the first user being granted a request for use of one of the resources during a previous arbitration cycle.

10. (Original) The method as recited in claim 8 wherein when multiple requesters requested the first resource during the previous arbitration cycle, the arbiter speculatively allocates the first resource to the one of the users according to one of a round-robin scheme and a pseudo random scheme.

11. (Previously Presented) The method as recited in claim 8 wherein when multiple requesters requested the first resource during a predetermined number of previous arbitration cycles, the arbiter speculatively allocates the first resource according to which of the users had the most requests for the first resource, during the predetermined number of previous arbitration cycles, the predetermined number being one or more.

12. (Previously Presented) The method as recited in claim 8 wherein real-time requests are speculatively allocated by the arbiter.

13. (Previously Presented) The method as recited in claim 8 further comprising speculatively allocating more than one resource, including the first resource, to the first user for use during the access interval.

14. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

       allocating a first of the resources speculatively to a first of the users for use during an access interval, absent a request for the first resource from the first user,

       wherein speculatively allocating the first resource comprises allocating the first resource according to which of the users had the most requests for all resources combined, for a predetermined number of previous arbitration cycle.

15. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

       allocating a first of the resources speculatively to a first of the users for use during an access interval, absent a request for the first resource from the first user,

       wherein speculatively allocating the first resource comprises allocating the first resource according to which of the users had the most grants for a predetermined number of previous arbitration cycles.

16. (Previously Presented) The method as recited in claim 15 wherein speculatively allocating the first resource comprises allocating the first resource according to which of the users received the most grants for the first resource during a predetermined number of previous arbitration cycles.

17. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

       allocating a first of the resources speculatively to a first of the users for use during an access interval, absent a request for the first resource from the first user,

       wherein speculatively allocating the first resource comprises allocating the first resource according to a fill level of at least one of a send queue and a receive queue associated respectively with a user and resource for an arbitrated data transfer.

18. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

       allocating a first of the resources speculatively to a first of the users for use during an access interval, absent a request for the first resource from the first user,

       wherein a maximum number of resources unallocated by the arbiter for a particular access cycle are speculatively allocated for use during the particular access cycle.

19. (Previously Presented) An apparatus comprising:

    a plurality of users; and

    an arbiter coupled to receive request for use of resources by respective users and to receive an indication from a first user of the plurality of users as to whether the first user wishes to be speculatively allocated a resource,

    wherein the arbiter is responsive to speculatively allocate the resource to the first user for use during an access interval, absent a request from the first user for the resource, when the first user wishes to be speculatively allocated the resource according to the indication.

20. (Previously Presented) The apparatus as recited in claim 19, wherein the arbiter further receives a specified set of one or more resources indicating which resources the first user is interested in being speculatively allocated.

21. (Original) The apparatus as recited in claim 19 wherein the arbiter allocates at least a second resource for use during the access interval according to a request received by the arbiter for the second resource.

22. (Previously Presented) The apparatus as recited in claim 19 wherein the arbiter speculatively allocates the resource to the first user according to the first user having been granted a request for the resource during a previous arbitration cycle.

23. (Previously Presented) The apparatus as recited in claim 19 wherein the arbiter speculatively allocates the resource to the first user according to the first user having requested the resource during a previous arbitration cycle.

24. (Previously Presented) The apparatus as recited in claim 23 wherein when multiple requesters requested the resource during the previous arbitration cycle, the arbiter is responsive to speculatively allocate the resource to the first user according to one of a round-robin scheme and a pseudo random scheme.

25. (Previously Presented) The apparatus as recited in claim 23 wherein when multiple requesters requested the resource during a predetermined number of previous arbitration cycles, the arbiter speculatively allocates the resource according to which of the users had

the most requests for the resource, during the predetermined number of previous arbitration cycles, the predetermined number being one or more.

26. (Previously Presented) The apparatus as recited in claim 19 wherein speculatively allocating the resource comprises allocating the resource according to which of the users received the most grants or made the most requests, for a predetermined number of previous arbitration cycles.

27. (Previously Presented) The apparatus as recited in claim 19 wherein speculatively allocating the resource comprises allocating the resource according to a fixed priority scheme.

28. (Original) The apparatus as recited in claim 19 wherein a maximum number of resources unallocated by the arbitration logic for a particular access cycle in response to requests are speculatively allocated for use during the particular access cycle.

29. (Original) The apparatus as recited in claim 19 wherein the resources are memories and the users are processors.

30. (Previously Presented) An apparatus comprising:

a plurality of users; and

an arbiter coupled to receive requests for use of resources by respective users, the arbiter responsive to speculatively allocate a resource to a first user of the plurality of users for use during an access interval, absent a request from the first user for the resource,

wherein speculatively allocating the resource comprises allocating the resource according to which of the users received the most grants for the resource or made the most requests for the resource, during a predetermined number of previous arbitration cycles.

31. (Previously Presented) An apparatus comprising:

a plurality of users; and

an arbiter coupled to receive requests for use of resources by respective users, the arbiter responsive to speculatively allocate a first resource to a first user of the plurality

of users for use during an access interval, absent a request from the first user for the first resource,

wherein the arbiter speculatively allocates more than one resource, including the first resource, to the first user for use during the access interval.

32. (Previously Presented) The apparatus as recited in claim 31 wherein the resources are communication links and the users are communicatively coupled to the communication links.

33. (Previously Presented) A method of allocating resources in a system comprising:

arbitrating during a first arbitration cycle, requests received prior to a beginning of the first arbitration cycle, the requests for utilization of a first of the resources during a particular usage interval; and

allocating a second of the resources unallocated during the first arbitration cycle, prior to a start of the particular usage interval,

wherein the second resource is allocated utilizing a second arbitration cycle, subsequent to the first arbitration cycle, the second arbitration cycle arbitrating those requests received after the start of the first arbitration cycle.

34. (Previously Presented) The method as recited in claim 33 wherein the second resource is allocated speculatively.

35. (Previously Presented) The method as recited in claim 33 wherein the second arbitration cycle is shorter than the first arbitration cycle.

36. (Previously Presented) The method as recited in claim 33 wherein real-time requests are speculatively allocated by the arbiter.

37. (Previously Presented) The method as recited in claim 33 further comprising speculatively allocating more than one resource, including the first resource, to a user for use during the particular usage interval.

38. (Previously Presented) An apparatus comprising:

an arbiter coupled to supply control information for use of resources,

the arbiter coupled to receive requests from users for use of the resources during a particular access interval, the arbiter responsive to a first group of requests received prior to the start of a first arbitration cycle to determine allocation of the resources during the first arbitration cycle according to the first group of requests and to receive at least a second group of requests after the start of the first arbitration cycle, and to determine additional allocation of the resources according to the second group of requests during a second arbitration cycle, the second arbitration cycle being shorter than the first arbitration cycle, the first and second arbitration cycles allocating resources for use during the particular access interval.

39. (Previously Presented) The apparatus as recited in claim 38 wherein real-time requests are speculatively allocated by the arbiter.

40. (Previously Presented) The apparatus as recited in claim 38 wherein the arbiter speculatively allocates more than one resource, including the first resource, to a user for use during the particular access interval.

41. (Previously Presented) A method for sharing multiple resources among users using an arbiter comprising:

allocating a first of the resources speculatively to a first of the users for use during an access interval, absent a request for the first resource from the first of the users,

wherein speculatively allocating the first resource comprises using a scheme allocating the first resource to a user with the fewest requests.